# 2013 – IMAC XXXI

## Session: Bio-dynamics

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| Integrating Biodynamic Measurements in Frequency-based Substructuring to Study Human- structure Interaction, (11 pages) | |
|  | *S. Perrier, Y. Champoux, J-.M. Drouet, Universite de Sherbrooke* |

## Session: Nonlinear Substructures and SEM Substructures Wind Turbine Testbed – Blade Modeling & Correlation

|  |  |
| --- | --- |
| Substituting Internal Forces for Blocked Forces or Free Interface Displacements in Substructured Simulations, (21 pages) | |
|  | *P.L.C. van der Valk, D.J. Rixen, Delft University of Technology* |
| Implementation of Admittance Test Techniques for High-precision Measurement of Frequency Response Functions, (40 pages) | |
|  | *T.S. Edwards, Sandia National Laboratories* |
| Validation of Current State Frequency Based Substructuring Technology for the Characterisation of Steering Gear - Vehicle Interaction, (15 pages) | |
|  | *M.V. van der Seijs, D. de Klerk, D.J. Rixen, S. Rahimi, Delft University of Technology* |
| Proposed Approach for Admittance Testing of a Complex Aerospace Structure, (8 pages) | |
|  | *M. Arviso, R.L. Mayes, Sandia National Laboratories* |
| Strategies to Exploit Test Data in Subsystem Subtraction, (12 pages) | |
|  | *W. D'Ambrogio, Universita dell'Aquila; A. Fregolent, Universita di Roma La Sapienza* |
| Effects of Precise FRF Measurements for Frequency Based Substructuring, (10 pages) | |
|  | *J. Harvie, P. Avitabile, University of Massachusetts Lowell* |

## Session: Modal Parameter Identification for Civil Structures

|  |  |
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| Improved Substructure Identification through use of an Active Control Device, (6 pages) | |
|  | *C.E. DeVore, E.A. Johnson, University of Southern California; R.E. Christenson, University of Connecticut* |

## Session: Tutorial on Fluid Structure Interaction AND Adaptive Structures

|  |  |
| --- | --- |
| Control of Dynamic Mass as Boundary Condition for Testing Substructures, (6 pages) | |
|  | *M. Baschke, M. Krepl, D. Sachau, Helmut-Schmidt-University of the Federal Armed Forces*  *Hamburg* |

## Session: Substructures – Wind Turbine Testbed, Fixed Base Methods, Nonlinear Methods

|  |  |
| --- | --- |
| Coupling of a Bladed Hub to the Tower of the Ampair 600 Wind Turbine Using the Transmission Simulator Method, (15 pages) | |
|  | *D.P. Rohe, R.L. Mayes, Sandia National Laboratories* |
| Extraction of Fixed Base Modes of a Structure Mounted on a Shake Table, (12 pages) | |
|  | *K. Napolitano, N. Yoder, W. Fladung, ATA Engineering, Inc.* |
| Efficient Method of Measuring Effective Mass of a System, (11 pages) | |
|  | *R.L. Mayes, T.F. Schoenherr, J. Blecke, D.P. Rohe, Sandia National Laboratories* |
| Investigation of Modal Iwan Models for Structures With Bolted Joints, (18 pages) | |
|  | *B.J. Deaner, M.S. Allen, University of Wisconsin-Madison; M.J. Starr, D.J. Segalman,*  *Sandia National Laboratories* |
| Identification of Nonlinear Joint Characteristics in Dynamic Substructuring, (10 pages) | |
|  | *P. Reuss, University of Stuttgart; S. Kruse, Audi AG; S. Peter, F. Morlock, L. Gaul,*  *University of Stuttgart* |
| Structural Modification of Nonlinear FEA Subcomponents Using Nonlinear Normal Modes, (18 pages) | |
|  | *R.J. Kuether, M.S. Allen, University of Wisconsin-Madison* |
| Interface Damping of the Ampair Wind Turbine Test Bed | |
|  | *D. Steinepreis, P. Reuss, F. Schempp, L. Gaul, University of Stuttgart* |

## Session: Substructure Methods

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| --- | --- |
| Ranking Constituents of Coupled Models for Improved Performance, (14 pages) | |
|  | *I. Farajpour, S. Atamturktur, Clemson University* |
| Error Estimation and Adaptive Model Reduction Applied to Offshore Wind Turbine Modeling, (25 pages) | |
|  | *S.N. Voormeeren, Delft University of Technology/Siemens Wind Power; B.P. Nortier,*  *Siemens Wind Power; D.J. Rixen, Technische Universitat Munchen* |
| Formulation of a Craig-Bampton Experimental Substructure Using a Transmission Simulator, (12 pages) | |
|  | *D.C. Kammer, M.S. Allen, University of Wisconsin; R.L. Mayes, Sandia National* |
| Numerical Substructuring Methods in Finite Element Analysis, (6 pages) | |
|  | *J.E. Mendoza, A.K. Miller, New Mexico Tech* |
| Coupling Experimental and Analytical Substructures With a Continuous Connection Using the Transmission Simulator Method (15 pages) | |
|  | *R.L. Mayes, D.P. Rohe, Sandia National Laboratories* |
| A New Structural Modification Method With Additional Degrees of Freedom for Dynamic Analysis of Large Systems, (9 pages) | |
|  | *B. Sayin, E. Cigeroglu, Middle East Technical University* |

## Session: Substructure Methods

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| Spread in Modal Data Obtained From Wind Turbine Blade Testing, (10 pages) | |
|  | *M. Gibanica, A.T. Johansson, S. Rahrovani, M. Khorsand, T. Abrahamsson, Chalmers*  *University of Technology* |
| Modeling and Calibration of Small-scale Wind Turbine Blade, (8 pages) | |
|  | *A.T. Johansson, Chalmers University of Technology; C.-J. Lindholm, Composites Consulting Group; M. Khorsand, T. Abrahamsson, Chalmers University of Technology* |
| Dynamic Substructuring Wind Turbine Blade Finite Element Model Update and Correlation With Test, (9 pages) | |
|  | *M. Nurbhai, D. Macknelly, AWE* |
| Additional Modal Testing of Turbine Blades and the Application of Transmission Simulator Substructuring Methodology for Coupling, (12 pages) | |
|  | *D. Macknelly, M. Nurbhai, N. Monk, AWE Ltd* |
| Selection of Interface DoFs in Hub-blade(s) Coupling of Ampair Wind Turbine Test Bed, (15 pages) | |
|  | *J. Brunetti, Universita dell'Aquila; A. Culla, Universita di Roma La Sapienza; W. D'Ambrogio, Universita dell'Aquila; A. Fregolent, Universita di Roma La Sapienza* |
| The Ampair 600 Wind Turbine Benchmark: Results From the Frequency Based Substructuring Applied to the Rotor Assembly, (13 pages) | |
|  | *S. Rahimi, D. de Klerk, Delft University of Technology; D.J. Rixen, Technical University of Munich* |

## Session: Tribute to David Zimmerman

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| Linear/Nonlinear Reduced-order Substructuring for Uncertainty Quantification and Predictive Accuracy Assessment, (14 pages) | |
|  | *T. Simmermacher, Sandia National Laboratories T. Hasselman, G.. Lloyd, R. Schnalzer, ACTA Incorporated* |

## Session: Modal Validation and Uncertainty Quantification

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| Uncertainty Propagation in Floating Raft System by FRF-based Substructuring Method for  Elastic Coupling, (8 pages) | |
|  | *X. Huang, H.X. Hua, F. Chen, S.Y. Xu, Shanghai Jiao Tong University* |

# 2012 - IMAC XXX

## Session: Topics in Experimental Dynamics Substructuring and Wind Turbine Dynamics

|  |  |
| --- | --- |
| Tutorial on Experimental Dynamic Substructuring Using the Transmission Simulator Method (10 pages) | |
|  | *R.L. Mayes, Sandia National Laboratories* |
| Experimental-analytical Substructure Model Sensitivity Analysis for Cutting Machine Chatter Prediction (11 pages) | |
|  | *A. Liljerehn, Chalmers University of Technology/AB Sandvik Coromant; T. Abrahamsson, Chalmers University of Technology* |
| Eliminating Indefinite Mass Matrices With the Transmission Simulator Method of Substructuring (12 pages) | |
|  | *R.L. Mayes, Sandia National Laboratories; M.S. Allen, D.C. Kammer, University of Wisconsin Madison* |
| Using Substructuring to Predict the Human Hand Influence on a Mechanical Structure (14 pages) | |
|  | *S. Perrier, Y. Champoux, J-M. Drouet, Université de Sherbrooke* |
| Simple Experiments to Validate Modal Substructure Models (7 pages) | |
|  | *M.S. Allen, D.C. Kammer, University of Wisconsin-Madison* |
| Experimental Realization of System-Level Vibration by Use of Single Component Based on Virtual Boundary Condition Concept (7 pages)  *K. Furuya, T. Hiyama, N. Okubo, T. Toi, Chuo University* | |
| An Introduction to the SEM Substructures Focus Group Test Bed - The Ampair 600 Wind Turbine (7 pages) | |
|  | *R.L. Mayes, Sandia National Laboratories* |
| Modal Assessment of Wind Turbine Blade in Preparation of Experimental Substructuring (2 pages) | |
|  | *M.S. Nurbhai, D.J. Macknelly, AWE plc* |
| Comparison of Some Wind Turbine Blade Tests in Various Configurations (6 pages) | |
|  | *J. Harvie, P. Avitabile, University of Massachusetts Lowell* |
| Consideration of Interface Damping in Dynamic Substructuring (8 pages) | |
|  | *J. Harvie, P. Avitabile, University of Massachusetts Lowell* |
| Direct Hybrid Formulation for Substructure Decoupling (20 pages) | |
|  | *W. D'Ambrogio, Università dell'Aquila; A. Fregolent, UNiversità di Roma La Sapienza* |
| Substructuring with Nonlinear Subcomponents: A Nonlinear Normal Mode Perspective (15 pages) | |
|  | *M.S. Allen, R.J. Kuether, University of Wisconsin-Madison* |
| An Effective Method for Assembling Impulse Response Functions to Linear and Non-linear Finite Element Models (13 pages) | |
|  | *P.L.C. van der Valk, D.J. Rixen, Delft University of Technology* |
| Truncating the Impulse Responses of Substructures to Speed Up the Impulse-based Substructuring (11 pages)  *D.J. Rixen, N. Haghighat, Delft University of Technology* | |
| Application of Residual Vectors to Superelement Modeling of an Offshore Wind Turbine Foundation (15 pages) | |
|  | *B.P. Nortier, S.N. Voormeeren, D.J. Rixen, Delft University of Technology* |
| Wind Turbine Experimental Dynamic Substructure Development (8 pages) | |
|  | *R.L. Mayes, Sandia National Laboratories* |
| On the Mode Based Simulation of Dry Friction Inside Lap Joints (10 pages) | |
|  | *M. Breitfuss, Johannes Kepler University Linz; W. Witteveen, G. Prechtl, Upper Austria University of Applied Sciences* |
| Efficient Updating of Static Modes in the Craig-Bampton Reduction Basis (19 pages)  *S.N. Voormeeren, D.J. Rixen, Delft University of Technology* | |
| Comparison of CMS, Krylov and balanced truncation based model reduction from a mechanical application engineer's perspective (11 pages) | |
|  | *W. Witteveen, Upper Austria University of Applied Sciences, Wels* |

## Session: Topics in Model Validation and Uncertainty Quantification

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| Propagation of Uncertainty in Substructured Spaccraft Using Frequency Response - 3 pages | |
|  | *D.C. Kammer, D. Krattiger, University of Wisconsin-Madison* |
| Model Updating of Complex Assembly Structures Based on Substructures-Joint Parameters (18 pages) | |
|  | *M.H. Sadeghi, P. Soleimanian, Tabriz University; H. Samandari, Middle East Technical University* |

**2011 - IMAC XXIX**

## Session: Linking Models and Experiments

|  |  |
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| Direct Decoupling of Substructures Using Primal and Dual Formulation (30 pages) | |
|  | *W. D'Ambrogio, Universita dell'Aquila; A. Fregolent, Universita di Roma La Sapienza* |
| Smoothing Experimental Data in Dynamic Substructuring of Built up Systems (21 pages) | |
|  | *A. Culla, Università di Roma La Sapienza; W. D'Ambrogio, Università dell'Aquila; A. Fregolent, A. Schiavone, Università di Roma La Sapienza* |
| Metrics for Diagnosing Negative Mass and Stiffness When Uncoupling Experimental and Analytical Substructures (23 pages) | |
|  | *M.S. Allen, D.C. Kammer, University of Wisconsin-Madison; R.L. Mayes, Sandia National Laboratories* |
| Propagation of Free-interface Substructure Uncertainty into System Test-analysis Correlation (17 pages) | |
|  | *D.C. Kammer, S. Nimityongskul, D. Krattiger, University of Wisconsin* |
| Globally Enriched Substructuring Techniques for Vibro-acoustic Simulation (18 pages) | |
|  | *U. Tabak, D.J. Rixen, Delft University of Technology* |
| A Truly Hybrid Approach to Substructuring Problems Using Mixed Assembly and Implicit Solving Strategies (19 pages) | |
|  | *S.N. Voormeeren, P.L.C. van der Valk, D.J. Rixen, Delft University of Technology* |

# 2010 – IMAX XXVIII

## Session: Substructuring (Experimental Techniques)

|  |  |
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| A Dual Approach to Substructure Decoupling Techniques (16 pages) | |
|  | *S.N. Voormeeren, D.J. Rixen, Delft University of Technology* |
| Using Component Modes in a System Design Process (9 pages) | |
|  | *G. Vermot des Roches, J.-P. Bianchi, SDTools; E. Balmes, SDTools/Arts et Metiers ParisTech;*  *R. Lemaire, T. Pasquet, Robert Bosch France (SAS)* |
| Computation of Distributed Forces in Modally Reduced Mechanical Systems (9 pages) | |
|  | *W. Witteveen, Linz Center of Mechatronics Gmb* |
| Substructuring Using Impulse Response Functions for Impact Analysis (10 pages) | |
|  | *D.J. Rixen, Delft University of Technology* |
| Static Correction in Model Order Reduction Techniques for Multiphysical Problems (16 pages) | |
|  | *A.M. Steenhoek, D.J. Rixen, Delft University of Technology; P. Nachtergaele, Open Engineering* |
| Truncation Error Propagation in Model Order Reduction Techniques Based on Substructuring (15 pages) | |
|  | *A.M. Steenhoek, D.J. Rixen, Delft University of Technology* |
| Investigation on the Use of Various Decoupling Approaches (9 pages) | |
|  | *D. Cloutier, P. Avitabile, University of Massachusetts, Lowell* |

## Session: Wind Turbine Dynamics

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| Practical Aspects of Dynamic Substructuring in Wind Turbine Engineering (23pages) | |
|  | *S.N. Voormeeren, P.L.C. van der Valk, D.J. Rixen, Delft University of Technology* |

## Session: Model Correlation and Updating – Civil Structures

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| Model Updating by Combining Substructure Energy Functions and Subset Selection (8 pages) |
| *H. Wu, L. Sun, Tongji University* Session: Experimental Dynamic Substructuring  |  |  | | --- | --- | | Model Reduction and Substructuring Techniques for the Vibro-acoustic Simulation of Automotive Piping and Exhaust Systems (10 pgs) | | |  | *J. Herrmann, M. Junge, L. Gaul, University of Stuttgart* | | Examples of Hybrid Dynamic Models Combining Experimental and Finite Element Substructures (18 pgs) | | |  | *R.L. Mayes, M. Ross, P.S. Hunter, Sandia National Laboratories* | | Propagation of Uncertainty in Test/Analysis Correlation for Substructured Spacecraft (2 pgs) | | |  | *D.C. Kammer, S. Nimityongskul, University of Wisconsin-Madison* | | Experimental Modal Substructuring to Extract Fixed-base Modes from a Substructure Attached to a Flexible Fixture (15 pgs) | | |  | *M.S. Allen, H.M. Gindlin, University of Wisconsin-Madison; R.L. Mayes, Sandia National Laboratories* | | How Bias Errors Affect Experimental Dynamic Substructuring (12 pages) | | |  | *D. de Klerk, Müller-BBM VibroAkustik Systeme B.V./Delft University of Technology* | | A Benchmark Test Structure for Experimental Dynamic Substructuring (10 pages) | | |  | *P.L.C. van der Valk, J.B. van Wuijckhuijse, D. de Klerk, Delft University of Technology* | | |  |

# 2009 – IMAX XXVII

## Session: Substructuring (Experimental Techniques)

|  |  |
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| [Decoupling Procedures in the General Framework of Frequency Based Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19441) (15 pages) | |
|  | *W. D'Ambrogio, Università dell'Aquila; A. Fregolent, Università di Roma 'La Sapienza'* |
| [Determining the Significant Number of Singular Values in Experimental Dynamic Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19443) (6 pages) | |
|  | *D. de Klerk, Delft University of Technology* |
| [Structural Modifications With Additional DOF - Applications to Real Structures](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19442) (12 pages) | |
|  | *G. Canbaloglu, ASELSAN Inc., H.N. Özgüven, Middle East Technical University* |

## Session: Substructuring (Numerical Methods)

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| [Dual Craig-Bampton With Enrichment to Avoid Spurious Modes](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19403) (14 pages) | |
|  | *D.J. Rixen, Delft University of Technology* |
| [Efficient Substructuring Techniques for the Investigation of Fluid-filled Piping Systems](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19402) (9 pages) | |
|  | *J. Herrmann, M. Maess, L. Gaul, University of Stuttgart* |
| [Efficient Topology Optimization for Large and Dynamically Loaded FE Models](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19407) (9 pages) | |
|  | *W. Witteveen, Linz Center of Mechatronics GmbH.; K. Puchner, MAGNA Powertrain; K. Sherif, Linz Center of Mechatronics GmbH.; H. Irschik, Johannes Kepler University Linz* |
| [Extracting Fixed Base Modal Models From Vibration Tests on Flexible Tables](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19408) (14 pages) | |
|  | *R.L. Mayes, L.D. Bridgers, Sandia National Laboratories* |
| [Model Order Reduction for Thermomechanically Coupled Problems](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19405) (19 pages) | |
|  | *A.M. Steenhoek, D.J. Rixen, Delft University of Technology; P. Nachtergaele, Open Engineering* |
| [On Fast Computation of Effective Independence Through QR Downdating for Sensor Placement](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19406) (15 pages) | |
|  | *D.S. Li, Dalian University of Technology/University of Siegen; H.N. Li, Dalian University of Technology; C.P. Fritzen, University of Siegen* |
| [Vibration and Power Flow Analyses of Built-up Structures in a Broad Frequency Range](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19404) (9 pages) | |
|  | *H. Xu, W.L. Li, Wayne State University* |

## Session: Substructuring (Uncertainty)

|  |  |
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| [Component Mode Synthesis Using Reduced Order, Test Verified Components](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19507) (14 pages) | |
|  | *A. Butland, P. Avitabile, University of Massachusetts, Lowell* |
| [Condtioning of FRF Measurements for use With Frequency Based Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19506) (15 pages) | |
|  | *D. Nicgorski, P. Avitabile, University of Massachusetts, Lowell* |
| [Dynamic Error Correction of Force Sensor](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19511) (10 pages) | |
|  | *Y. Fujii, Gunma University* |
| [Effect of Model Order Ambiguity in Experimental Modal Analysis on Substructuring Predictions](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19508) (13 pages) | |
|  | *M.S. Allen, S.A. Miller, University of Wisconsin-Madison;* |
| [Minimum Relative Entropy Criterion for Damage Detection and Location](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19509) (7 pages) | |
|  | *C. Mares, Brunel University; A. Kyprianou, University of Cyprus* |
| [Substructure Decoupling Techniques - A Review and Uncertainty Propagation Analysis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=19510) (10 pages) | |
|  | *S.N. Voormeeren, D.J. Rixen, Delft University of Technology* |

# 2008 – IMAC XXVI

## Session: MVUQ – Substructure and Model Reduction Uncertainty Quantification

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| [Probabilistic Investigation of Sensitivities of Advanced Test-analysis Model Correlation Methods](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20164) (19 pages) | |
|  | *E.J. Bergman, M.S. Allen, D.C. Kammer, University of Wisconsin, Madison; R.L. Mayes, Sandia National Laboratories* |
| [Reducing Variability of a Set of Structures Assembled From Uncertain Substructures](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20162) (9 pages) | |
|  | *W. D'Ambrogio, Università dell’Aquila; A. Fregolent, University of Rome "La Sapienza"* |
| [Uncertainty Propagation in Experimental Dynamic Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20163) (11 pages) | |
|  | *D. de Klerk, Delft University of Technology/BMW AG; S.N. Voormeeren, Delft University of Technology* |

## Session: Substructuring (Experimental Techniques)

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| [Combining Experimental and Analytical Substructures With Multiple Connections](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20126) (13 pages) | |
|  | *R.L. Mayes, P.S. Hunter, T.W. Simmermacher, Sandia National Laboratories; M.S. Allen, University of Wisconsin, Madison* |
| [Estimation of Transmitted Loads Using Experimental Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20127) (13 pages) | |
|  | *M. Corus, Ecole Centrale Paris; O. Sauvage, PSA Peugeot Citroën; E. Balmès, Ecole Centrale Paris* |
| [How Measurement Inaccuracies Induce Spurious Peaks in Frequency Based Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20124) (15 pages) | |
|  | *D.J. Rixen, Delft University of Technology* |
| [Promises and Pitfalls of Decoupling Procedures](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20123) (7 pages) | |
|  | *W. D'Ambrogio, Università dell’Aquila; A. Fregolent, Università of Rome "La Sapienza"* |
| [Solving the RDoF Problem in Experimental Dynamic Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20125) (9 pages) | |
|  | *D. de Klerk, Delft University of Technology/BMW AG; D.J. Rixen, S.N. Voormeeren, F. Pasteuning, Delft University of Technology* |

## Session: Substructuring (Numerical Methods)

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| [Design Optimization Utilizing Dynamic Substructuring and Artificial Intelligence Techniques](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20098) (10 pages) | |
|  | *D. Akçay Perdahcioglu, M.H.M. Ellenbroek, P.J.M. van der Hoogt, A. de Boer, University of Twente* |
| [Modes and Regular Shapes. How to Extend Component Mode Synthesis Theory](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20097) (13 pages) | |
|  | *E. Balmes, Ecole Centrale Paris/SDTools* |
| [Reduced Models of Thermo-mechanical Systems for Efficient Analysis in the Concurrent Design Facility at the European Space Agency](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20099) (11 pages) | |
|  | *P. Nachtergaele, I. Klapka, Open Engineering; D.J. Rixen, Delft University of Technology; A. Mestreau-Garreau, S. Fransen, J. Etchells, A. Caldwell, ESA/ESTEC* |

## Session: Substructuring Methods

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| [A Reduced Order, Test Verified Component Mode Synthesis Approach for System Modeling Applications](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20160) (17 pages) | |
|  | *A. Butland, P. Avitabile, University of Massachusetts, Lowell* |
| [Estimation of Rigid Body Modes for System Model Development](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20161) (14 pages) | |
|  | *A. Williams, P. Avitabile, University of Massachusetts, Lowell* |
| [Experimental Issues Related to Frequency Response Function Measurements for Frequency Based Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20159) (14 pages) | |
|  | *D. Nicgorski, P. Avitabile, University of Massachusetts, Lowell* |
| [Modal and Frequency Based Substructuring Using Rotational DOF Considerations](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20157) (14 pages) | |
|  | *A. Williams, C. Chipman, P. Avitabile, University of Massachusetts, Lowell* |
| [Vibroacoustic Optimization of Complex Structures Using Vibration Criteria Between Substructures](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20158) (16 pages) | |
|  | *S.B. Besset, L.J. Jézéquel, École Centrale de Lyon* |

# 2007 – IMAC XXV

## Session: Acoustics

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| [Substructuring in an Energy Finite Element Formulation for Analyzing Complex Structural – Acoustic Systems](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20735) (9 pages) | |
|  | *G. Zhang, Michigan Engineering Services, LLC; N. Vlahopoulos, University of Michigan* |

## Session: Linking Analysis and Test

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| [Combining Lightly Damped Experimental Substructures with Analytical Substructures](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20552) (17 pages) | | |
|  | | *R.L. Mayes, E.C. Stasiunas, Sandia National Laboratories* |
| [Comparison of FRF and Modal Methods for Combining Experimental and Analytical Substructures](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=20553) (19 pages) | | |
|  | *M.S. Allen, University of Wisconsin, Madison; R.L. Mayes, Sandia National Laboratories* | |

# 2006 – IMAC XXIV

## Session: Substructuring & Processing Modal Data

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| ['Flexibility' of Information Sensitivity and Problems of Dynamic Measurements, Analysis, Identification](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=21740) (5 pages) | |
|  | *G. Abramchuk, Consultant; K. Abramchuk* |
| [Component Mode Synthesis for Efficient Structure-acoustic Simulation of Piping Systems](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=21736) (9 pages) | |
|  | *M. Maess, L. Gaul, University of Stuttgart* |
| [Development of Efficient Reduced Models for Rigid Body Dynamics Simulation for Helicopter Missile Wing Combinations](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=21735) (13 pages) | |
|  | *T. Van Zandt, N. Wirkkala, P. Avitabile, University of Massachusetts, Lowell; B. Birdsong, US Army Aviation and Missile Command* |
| [Extending SMAC to Multiple Reference FRFs](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=21734) (11 pages) | |
|  | *D.P. Hensley, ATA Engineering, Inc.; R.L. Mayes, Sandia National Laboratories* |
| [Modal Analysis of Hollow Parts of a Structure](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=21738) (8 pages) | |
|  | *S. Besset, L. Jezequel, École Centrale de Lyon* |
| [Subspace Identification of Modal Coordinate Time Series](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=21739) (11 pages) | |
|  | *C. Hoen, Vetco Aibel AS* |
| [The Frequency Based Substructuring (FBS) Method Reformulated According to the Dual Domain Decomposition Method](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=21737) (14 pages) | |
|  | *D. de Klerk, D.J. Rixen, J. de Jong, Delft University of Technology* |

# 2005 – IMAC XXIII

## Session: Substructuring

|  |  |
| --- | --- |
| [An Improved RCSA Model for Tool Point Frequency Response Prediction](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=23557) (10 pages) | |
|  | *G.S. Duncan, T.L. Schmitz, University of Florida, Gainesville* |
| [Efficient Computation of Eigenmodes of Quasi-cyclic Structures](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=23554) (13 pages) | |
|  | *D.J. Rixen, R.F. Lohman, Delft University of Technology* |
| [Quantifying Uncertainty in an Admittance Model Due to a Test Fixture](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=23553) (8 pages) | |
|  | *L.A. Simmons, G.E. Smith, R.L. Mayes, D.S. Epp, Sandia National Laboratories* |
| [Robust Modal Synthesis in Dynamic Stochastic](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=23555) (9 pages) | |
|  | *M. Guedri, Institute Preparatoire aux Etudes d'Ingenieurs de Nabeul; N. Bouhaddi, Institut FEMTO; R. Majed, Institute Preparatoire aux Etudes d'Ingenieurs de Nabeul* |
| [Substructure Coupling for Motion Profile Tuning of a Remote Sensing Camera](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=23556) (8 pages) | |
|  | *J.S. Hammes, W. Semke, University of North Dakota* |
| [Using Subspace on a Large Aircraft Dataset, A Case Study](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=23558) (9 pages) | |
|  | *M. Goursat, INRIA; L. Mevel, IRISA* |

# 2004 – IMAC XXII

## Session: Analytical Methods II

|  |  |
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| [Reallocation of System Mass and Stiffness for Achieving Target Specifications Using a Superelement/Substructuring Methodology](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=24584) (15 pages) | |
|  | *P. Avitabile, H. Tsuji, J. O'Callahan, University of Massachusetts, Lowell; J.P. DeClerck, General Motors Corporation* |

## Session: Experimental Techniques I

|  |  |
| --- | --- |
| [Damping and Modal Density - Structure vs. Substructure](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=24408) (6 pages) | |
|  | *G. Bissinger, East Carolina University* |

## Session: Finite Element & Substructuring Techniques

|  |  |
| --- | --- |
| [A Method for Substructure Synthesis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=24609) (9 pages) | |
|  | *X. Liu, General Motors Powertrain Engineering* |
| [Combining Test-based and Finite Element-based Models in NASTRAN](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=24608) (6 pages) | |
|  | *R.N. Hopkins, T.G. Carne, C.R. Dohrmann, C.F. Nelson, C.C. O'Gorman, Sandia National Laboratories* |
| [Efficient Component Mode Synthesis With a New Interface Reduction Method](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=24610) (13 pages) | |
|  | *G. Zhang, M.P. Castanier, C. Pierre, University of Michigan, Ann Arbor* |
| [Identification and Modelling of Structural Dynamics Characteristics of a Water Jet Cutting Machine](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=24605) (10 pages) | |
|  | *J.E. Wall, T.L. Englund, A.J. Berghuvud, Blekinge Institute of Technology* |
| [MAC Evaluations Utilized in FEA Analysis for Mode Identification](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=24606) (9 pages) | |
|  | *L.V. Burns, Robert Bosch Corporation* |
| [Parameter Uncertainty and Variability in the Structural Dynamics Modeling Process](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=24607) (11 pages) | |
|  | *S. Donders, LMS International; J. Van de Peer, Noesis Solutions; S. Dom, H. Van der Auweraer, LMS International; D. Vandepitte, Katholieke Universiteit Leuven - KULeuven* |
| [Vibration Analysis on the Laminas of Turbo-charger Compressor](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=24611) (5 pages) | |
|  | *H.B. Li, Y. Ma, Beijing Institute of Technology; Y. Wang, J. Cai, H. Zhang, Jiang YAN Machinery Plant Turbocharger Company* |

# 2003 – IMAC XXI

## Session: Laser Vibrometry II

|  |  |
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| [Line Coupling of Axisymmetric Substructures Using a Continuous-scan LDV](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=25843) (8 pages) | |
|  | *A.B. Stanbridge, P.R. Ind, D.J. Ewins, Imperial College of Science, Technology and Medicine* |

## Session: Substructuring

|  |  |
| --- | --- |
| [A Dominant Mode Selection Scheme for Coupled Structure Analysis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=25877) (7 pages) | |
|  | *M.I. Hussein, University of Michigan-Ann Arbor* |
| [Application of Acoustic Intensity Measurement and Operating Modal Analysis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=25880) (5 pages) | |
|  | *W. Li, Taiyuan University of Technology; L. Dong, Taiyuan Twin-Tower Aluminum Oxide Inc.; S. Xiong, Taiyuan University of Technology* |
| [Component Mode Synthesis Method Adapted to Optimization of Structural Dynamic Behavior](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=25874) (9 pages) | |
|  | *G. Masson, N. Bouhaddi, S. Cogan, Université de Franche-Comté; F. Laurant, SNECMA Moteurs* |
| [Improvement of Boundary Modes in Component Mode Synthesis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=25875) (7 pages) | |
|  | *M. Misawa, Shizuoka University; H. Katayama, Mitsubishi Electric Corporation* |
| [In-Operational Vibro-Acoustic Modelling of Cavities](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=25878) (7 pages) | |
|  | *G. De Sitter, B. Cauberghe, P. Guillaume, Vrije Universiteit Brussel* |
| [Model Reduction in Large Displacement Dynamical Problems](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=25876) (6 pages) | |
|  | *L.I. Myklebust, Swiss Centre of Ecectronicsand Microtechnics; B. Skallerud, Norwegian University of Science and Technology; B. Haugen, Fedem Technology, Inc.* |
| [SDM, Utilizing Evolution Strategies: Application to Substructures Having Non-Matching Nodes](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=25879) (9 pages) | |
|  | *J.-H. Lee, Y.S. Park, Korea Advanced Institute of Science and Technology* |

# 2002 – IMAC XX

## Session: Substructuring

|  |  |
| --- | --- |
| [Force Modes for Reducing the Interface Between Substructures](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=26503) (7 pages) | |
|  | *D.J. Rixen, T.U. Delft* |
| [Modal Description of Foundation Dynamics](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=26504) (7 pages) | |
|  | *M. Alejandro Ceballos, C.A. Prato, National University of Cordoba* |
| [Structural Modification and Dynamic Absorption](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=26505) (3 pages) | |
|  | *A. Gupta, Northern Illinois University; Y.M. Ram, Lousiana State University* |
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## Session: To Be Announced

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| [Substructuring Using Experimental Modal Data](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=26386) (5 pages) | |
|  | *L. Gaul, University of Stuttgart* |

# 2001 – IMAC XIV

## Session: Experimental Techniques I

|  |  |
| --- | --- |
| [Underflow Error in Substructure Testing](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=26571) (7 pages) | |
|  | *J. Dong, MTS Systems Corporation; K.G. McConnell, Iowa State University of Scienceand Technology* |

## Session: Finite Element I

|  |  |
| --- | --- |
| [Application of Lumped Masses to Determine Residual Flexibility of Substructure](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=26544) (5 pages) | |
|  | *D.M. Ford, S.H. Starr, Delphi Automotive* |

# 2000 – IMAC XVIII

## Session: Substructuring

|  |  |
| --- | --- |
| [An Integrated Experimental/Numerical Noise Source Identification Technique](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37798) (6 pages) | |
|  | *S.T. Raveendra, B. Gardner, A. Nejade, S. Sureshkumar, Automated Analysis Corporation* |
| [Dynamic Condensation Methods for Viscously Damped Models](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37796) (6 pages) | |
|  | *Z.Q. Qu, R.P. Selvam, University of Arkansas* |
| [Frequency Domain Synchronous Averaging](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37795) (4 pages) | |
|  | *L.J. Davis, Larson Davis Inc.* |
| [IterativeMethods for Dynamic Condensation of Structural Matrices](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37800) (7 pages) | |
|  | *Y. Ye, Commerzbank, Aktiengesellschaft, Shanghai Branch; Z.Q. Qu,University of Arkansas* |
| [Linking Proper Orthogonal Modes and Normal Modes of the Structure](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37799) (7 pages) | |
|  | *S.Han, Kyungnam University* |
| [Methods for Improving the Efficiency of Numerical Noise Prediction](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37797) (5 pages) | |
|  | *D.W. Herrin, A.F. Seybert, T. Hu, University of Kentucky* |

## Session: Substructuring Analysis & Testing I

|  |  |
| --- | --- |
| [A Brief Tutorial on Substructure Analysis and Testing](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37662) (10 pages) | |
|  | *R.R. Craig, Jr., The University of Texas at Austin* |
| [Estimation and Use of Residual Modes in Modal Coupling Calculations: A Case Study](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37666) (7 pages) | |
|  | *L. Hermans, P. Mas, W. Leurs, N. Boucart, LMS International* |
| [Experience with a Test-Based Hybrid Component Mode Synthesis Approach](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37664) (7 pages) | |
|  | *Y. Soucy, Canadian Space Agency; J.L. Humar, Carleton University* |
| [Formulating Accurate Truncated Models of Continuous Beams](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37667) (6 pages) | |
|  | *R.L. Wells, University of Texas at Tyler* |
| [Identification of the Dynamic Behavior of Joints Using Substructuring Methods](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37665) (7 pages) | |
|  | *N.M.M. Maia, J.M.M. Silva, P.L.G.C. Silva, Technical University of Lisbon/I.S.T.* |
| [Meeting the NVH Computational Challenge: Automated Multi-level Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37663) (7 pages) | |
|  | *J.K. Bennighof, M.F. Kaplan, M.B. Muller, M. Kim, University of Texas at Austin* |

## Session: Substructuring Analysis & Testing II

|  |  |
| --- | --- |
| [A Subsystem Design Tool Based on Modal Substructuring Concepts](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37704) (7 pages) | |
|  | *J.P. De Clerck, General Motors Proving Ground* |
| [Enabling Vibro-acoustic Optimization in a Superelement Environment: A Case Study](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37701) (7 pages) | |
|  | *L. Hermans, M. Brughmans, LMS International* |
| [Hybrid System Modelling Using Frequency Based Substructuring: A Case Study](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37700) (6 pages) | |
|  | *T. Van Langenhove, LMS International; J. Maasdam, DAF Trucks* |
| [Impedance Modeling for Machine Tool Applications](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37705) (5 pages) | |
|  | *P. Avitabile, F. Piergentili, University of Massachusetts Lowell* |
| [Substructure Synthesis via Elastic Media Part H: Coupling Analysis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37703) (7 pages) | |
|  | *W. Liu, D.J. Ewins, Imperial College of Science, Technology and Medicine* |
| [Substructure Synthesis via Elastic Media Part I: Joint Identification](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=37702) (7 pages) | |
|  | *W. Liu, D.J. Ewins, Imperial College of Science, Technology and Medicine* |

# 1999 – IMAC XVII

## Session: Automotive

|  |  |
| --- | --- |
| [Reducing NVH Analysis Burden Using Automated Mufti-level Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38191) (6 pages) | |
|  | *J.K. Bennighof, M.F. Kaplan, M.B. Muller, University of Texas at Austin* |

## Session: Substructuring

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| --- | --- |
| [Component Mode Synthesis Methods for Non-proportionally Damped Systems](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38361) (9 pages) | |
|  | *J.A. Morgan, General Motors Powertrain Group; C. Pierre,G.M. Hulbert, University of Michigan* |
| [Experimental Evaluation of Receptance Coupling Analysis Applied toRotor/Stator System](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38358) (7 pages) | |
|  | *J.V. Ferreira, D.J. Ewins, Imperial College of Science, Technology and Medicine* |
| [Experimental Modal Analysis for a Satellite with Flexible Appendages](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38360) (7 pages) | |
|  | *K. Komatsu, M. Sano, National Aerospace Laboratory Japan;A. Tsujihata, National Space Development Agency* |
| [On the Dynamic Properties of Reduced Systems in Structural Coupling](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38357) (6 pages) | |
|  | *A.P.V. Urgueira, Faculdade de Ciencias e Tecnologia; N.M.M. Maia, TechnicalUniversity of Lisbon/I.S.T.; R.A.B. Almeida, Faculdade de Ciencias e Tecnologia* |
| [The Importance Assessment of RDOF in FRF Coupling Analysis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38362) (7 pages) | |
|  | *W. Liu, D.J. Ewins, Imperial College of Science, Technology and Medicine* |
| [Using Rigid Connections in Experimental Modal Synthesis: Implementationand Validation](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38356) (5 pages) | |
|  | *B. Dierckx, W. Leurs, N. Boucart, LMS International; W. Moll, Daimler-Benz AG* |
| [Vibration Characteristics of a Beam with Nonlinear Support Using ReceptanceCoupling Analysis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38359) (7 pages) | |
|  | *J.V. Ferreira, D.J. Ewins, Imperial College of Science, Technology and Medicine* |

# 1998 – IMAC XVI

## Session: Finite Element

|  |  |
| --- | --- |
| [Locating and Orienting Substructures to Minimize Stress](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38923) (6 pages) | |
|  | *J.G. Zibas and R. Houghton, Tennessee Technological University* |

## Session: Modal Test Methods III

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| [Substructure Model Updating Techniques Using Component Receptance Sensitivity (CRS)](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38956) (7 pages) | |
|  | *K.J. Chang and Y.P. Park, Yonsei University* |

## Session: Substructuring

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| --- | --- |
| [Efficient Sensitivity Analysis With Condensed Finite Element Models](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38872) (7 pages) | |
|  | *E. Balmes, Ecole Centrale Paris* |
| [Experimental Verification of a New Test Based Modal Synthesis Approach](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38873) (7 pages) | |
|  | *Y. Soucy, Canadian Space Agency; and J.L. Humar, Carleton University* |
| [Hypothetically Extended Substructure Method for Component Mode Synthesis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38875) (5 pages) | |
|  | *Y.Y. Kim and J.H. Kang, Seoul National University* |
| [On the Dynamic Characterization of Joints Using Uncoupling Techniques](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=38874) (7 pages) | |
|  | *N.M.M. Maia, J.M.M. Silva, A.M.R. Ribeiro and P.L.C. Silva, Technical University of Lisbotd1.S.T.* |

# 1997 – IMAC XV

## Session: Analytical Methods I

|  |  |
| --- | --- |
| [Frequency Response Analysis Using Adaptive MuRi-level Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39111) (7 pages) | |
|  | *J.K. Bennighof, M.F. Kaplan and M.B. Muller, University of Texas at Austin (USA)* |

## Session: Modal Parameter Identification I

|  |  |
| --- | --- |
| [Frequency-domain Substructure System Identification](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39042) (7 pages) | |
|  | *E.L. Blades, Structural Dynamics Research Corporation (USA); and R.R. Craig, Jr., The University of Texas at Austin (USA)* |

## Session: Model Updating and Correlation II

|  |  |
| --- | --- |
| [Finite Element Updating of Substructured Models](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39013) (7 pages) | |
|  | *F.M. Hemez, tcole Centrale of Paris (France)* |
| [Updating Local Physical and Global Generalized Parameters of Coupled Substructure Models](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39015) (9 pages) | |
|  | *M. Link, University of Kassel (Germany)* |

## Session: Substructuring

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| --- | --- |
| [Application of Hybrid Modeling Techniques for Computer Related Equipment](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39147) (5 pages) | |
|  | *P. Avitabile, F. Piergentili, University of Massachusetts Lowell (USA); and K. Lown, SUN Microsystems, Inc. (USA)* |
| [Applying a Combined Substructure-transfer Matrix Method to the Optimization of a Vibration Isolation System](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39153) (7 pages) | |
|  | *W. Lu and Q. Yu, Shanghai Jiao Tong University (P.R. China)* |
| [Improved Component Mode Synthesis Based on Double Condensation Method](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39152) (7 pages) | |
|  | *K. Brahmi and N. Bouhaddi, Universite de Franche-Comt6 (France)* |
| [Some Applications of Coupling/Uncoupling Techniques in Structural Dynamics Part 1 : Solving the Mass Cancellation Problem](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39148) (9 pages) | |
|  | *J.M.M. Silva, N.M.M. Maia and A.M.R. Ribeiro, lnstituto Superior Tknico (Portugal)* |
| [Some Applications of CouplinglUncoupling Techniques in Structural Dynamics Part 2: Generation of the Whole FRF Matrix from Measurements on a Single Column-The Mass Uncoupling Method (MUM)](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39149) (13 pages) | |
|  | *N.M.M. Maia, J.M.M. Silva and A.M.R. Ribeiro, lnstituto Superior Tknico (Portugal)* |
| [Some Applications of CouplinglUncoupling Techniques in Structural Dynamics Part 3: Estimation of Rotational Frequency-Response-Functions using MUM](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39150) (10 pages) | |
|  | *N.M.M. Maia, J.M.M. Silva and A.M.R. Ribeiro, lnstituto Superior Tknico (Portugal)* |
| [The Virtures of Static and Dynamic Compensations for FRF Based Substructuring](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39151) (6 pages) | |
|  | *K. Wyckaert, LMS International (Belgium); K.Q. Xu and P. Mas, Katholieke Universiteit Leuven (Belgium)* |

# 1996 – IMAC XIV

## Session: Modeling II

|  |  |
| --- | --- |
| [Equivalent Modelling Of Automobile Substructure: Glue Connection And Visco-Elastic Components](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39946) (7 pages) | |
|  | *C. Stawicki, F. Van Herpe and X. Bohineust, PSA PEUGEOT CITROEN* |

## Session: Substructuring

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| --- | --- |
| [A Systematic Coupling Procedure for Component Mode Synthesis with Least Squares Model Reduction](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39800) (7 pages) | |
|  | *K.P. Chiao, Tamsui Oxford University College (Taiwan, China)* |
| [Flexible Substructuring Coupling Based on Mixed Finite Element and Experimental Models: A Step Ahead of Transfer Path Analysis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39798) (8 pages) | |
|  | *K. Wyckaert, LMS International (Belgium); G. Mc Avoy, Trinity College (Ireland); and P. Mas, Katholieke Universiteit Leuven (Belgium)* |
| [Improved Experimental Component Mode Synthesis (IECMS) with Residual Compensation Based Purely on Experimental Results](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39799) (7 pages) | |
|  | *M.L.M. Duarte and D.J..Ewins, Imperial College of Science, Technology and Medicine (United Kingdom)* |
| [Locating and Orienting Substructures to Minimize Vibration](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39797) (7 pages) | |
|  | *J.G. Zibas and J.R. Houghton, Tennessee Technological University (USA)* |
| [Prediction of Transmitted Force Between Components Under Operating Condition for Reduction of Vibration and Noise](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39795) (6 pages) | |
|  | *N. Okubo, T. Toi and K. Aoyama, Chuo University (Japan)* |
| [Substructuring by Means of FRFs: Some Investigations on the Significance of Rotational DOFs](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39796) (7 pages) | |
|  | *T. Gialamas, D. Tsahalis, University of Patras (Greece); L. Bregant, Katholieke Universiteit Leuven (Belgium); D. Otte and H. Van der Auweraer, LMS International (Belgium)* |
| [System Identification and Structural Modification](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=39801) (10 pages) | |
|  | *S.Y. Chen and Y.G. Tsuei, National Cheng Kung University (Taiwan, China)* |

# 1995 – IMAC XIII

## Session: Analytical Methods IV

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| [Reduction of Junction Degrees of Freedom in Certain Methods of Dynamic Substructure Synthesis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40468) (6 pages) | |
|  | *K. Brahmi, N. Bouhaddi and R. Fillod, Universite de Franche-Comte (France)* |

## Session: Non-linear Structures I

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| [A Method for Forced Harmonic Response of Substructures Coupled by Non-linear Elements](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40488) (7 pages) | |
|  | *M.D. Comert and H.N. Ozguven, Middle East Technical University (Turkey)* |

## Session: Substructuring

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| [A Method of Evaluating Joint Parameters Application to Structural Modifications](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40444) (6 pages) | |
|  | *F. Llorca, Universite Bordeaux I LMP (France); D. Hennequin, CEA-CESTA (France); A. Gerard, Universite Bordeaux I LMP (France); and D. Brenot, CEA 83 (France)* |
| [A Three-dimensional, Multi-step Substructure Coupling Method Based on Frequency Response Functions with Control of the Statistical Measurement Error](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40446) (6 pages) | |
|  | *J. Bienert and H. Witfeld, University of the Federal Armed Forces Hamburg (Germany)* |
| [Correction of Transducer-loading Effects in Experimental Modal Analysis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40445) (5 pages) | |
|  | *J. Decker and H. Witfeld, University of the Federal Armed Forces Hamburg (Germany)* |
| [FRF Substructure Synthesis: Evaluation and Validation of Data Reduction Methods](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40443) (6 pages) | |
|  | *L. Bregant, Katholieke Universiteit Leuven (Belgium); D. Otte, LMS International (Belgium); and P. Sas, Katholieke Universiteit Lewen (Belgium)* |
| [Large Scale Unsymmetric Eigenvalue Problem in Structural Dynamics](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40448) (8 pages) | |
|  | *Z.C. Zheng and G. Ren, Tsinghua University (PA. China)* |
| [The Global Fuzzy Identification for Modal Paramete](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40447) (7 pages) | |
|  | *L. Gu, F. Sun and Q. Hu, Beijing Institute of Technology (P.R. China)* |

## Session: System Identification III

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| [Simulation Results, Including Noisy Data, for a New Substructure System Identification Method](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40474) (7 pages) | |
|  | *W.K. Cutshall, Southwest Research Institute (USA); and R.R. Craig, Jr., The University of Texas at Austin (USA)* |

# 1994 – IMAC XII

## Session: Analytical Methods I

|  |  |
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| [The Sensitivity Analysis of Multibody Systems by Attached Substructure Method](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40530) (7 pages) | |
|  | *S.C. Yeo, K.S. Ong, Defence Science Organization (Republic of Singapore); and A.Q. Liu, National University of Singapore (Republic of Singapore)* |

## Session: Rotating Machinery II

|  |  |
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| [A Substructure Method for the Transient Analysis of Nonlinear Rotordynamic Systems Using Modal Analysis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40727) (6 pages) | |
|  | *H.J. Holl and H. Irschik, University of Linz (Austria)* |

## Session: Substructuring

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| [A Comparison of Fixed-interface and Free-interface Component Mode Synthesis Methods for Finite Element Models](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40533) (7 pages) | |
|  | *M.J. Smith and S.G. Hutton, University of British Columbia (Canada)* |
| [An Implementation of Model Update Based on Larsson's Formulation](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40532) (11 pages) | |
|  | *M.K. Chargin and H. Miura, NASA Ames Research Center (USA)* |
| [Efficient Vibro-acoustic Design Evaluation Using External System Modeling and Identification](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40535) (7 pages) | |
|  | *B.K. Gardner and J.S. Bolton, Purdue University (USA)* |
| [Improving Interface Conditions in Modal Synthesis Methods. Application to a Bolted Assembly of Rectangular Plates](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40536) (7 pages) | |
|  | *F. Llorca, University Bordeaux and CEA-CESTA (France); A. Gerard, University Bordeaux (France); and D. Brenot, CEA BIII (France)* |
| [Modal Investigations of a Rectangular Plate with a Variable Depth Cavity](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40537) (7 pages) | |
|  | *R.M. French and G.E. Maddux, U.S. Air Force Wright Laboratory Flight Dynamics Directorate (USA)* |
| [Residual Component Modes in the Analysis of Composite Primary-secondary Systems](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40534) (7 pages) | |
|  | *S. Benfratello, G. Falsone, Universita di Palermo, (Italy); and G. Muscolino, University of Messina (Italy)* |

# 1993 – IMAC XI

## Session: Substructuring

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| [A Generalized Receptance Coupling Technique](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40884) (4 pages) | |
|  | *Y. Ren, Nanyang Technological University; and C.F. Beards, Imperial College of Science, Technology and Medicine* |
| [A New Multi-step Two-coordinate Coupling Technique and its Application for Detecting Linearly- dependent Coordinate](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40885) (5 pages) | |
|  | *Y. Ren, Nanyang Technological University; and C.F. Beards, Imperial College of Science, Technology and Medicine* |
| [Comparison Study of Modal Synthesis Methods](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40886) (6 pages) | |
|  | *H.M. Hu, M.S. Ju and Y.G. Tsuei, National Cheng Kung University* |
| [Optimum Design of Structure by Sensitivity Analysis](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40887) (7 pages) | |
|  | *Itsurou Kajiwara and Akio Nagamatsu, Tokyo Institute of Technology* |
| [The Harmonic Balance-substructure Method for the Dynamic Analysis of Large Rotor-bearing- foundation System](http://www.sem.org/Proceedings/ConferencePapers-Paper.cfm?ConfPapersPaperID=40888) (3 pages) | |
|  | *Gangtie Zheng and Wenhu Huang, Harbin Institute of Technology* |

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